GABRIELLE GIFFFORDS
8TH DISTRICT, ARIZONA

WASHINGTON OFFICE:
502 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2542

DISTRICT OFFICES:
TUCSON OFFICE
1661 NORTH SWAN, SUITE 112
TUCSON, AZ 85712
(520) 881-3588

COCHISE COUNTY OFFICE
77 CALLE PORTAL, SUITE B-160
SIERRA VISTA, AZ 85635
(520) 459-3115

Congress of the United States
House of Representatives
Washington, DC 20515

COMMITTEES:
ARMED SERVICES
SUBCOMMITTEE ON AIR AND LAND FORCES
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CONGRESSWOMAN GABRIELLE GIFFORDS
Community Solar Energy Initiative

Solar Energy in Southern Arizona
Executive Summary
September 2007

The Community Solar Energy Initiative report, *Solar Energy in Southern Arizona,* provides a snapshot of the current status of solar energy in Southern Arizona. Experts who developed the report agree that Arizona has enough daily sunshine to provide power for the entire United States. However, despite the bountiful sunshine, well over 90% of Southern Arizona's electricity is fueled by coal.

The challenge that looms is how to transform Arizona's energy portfolio by significantly increasing the production of solar generated electricity for use by the people of Arizona, and, ultimately, for transmission to other states.

The approval by the Arizona Corporation Commission (ACC) of the Renewable Energy Standard and Tariff (REST) should provide a big boon to solar growth. The REST will require electric utilities to generate 15% of the total electricity they sell from renewable resources, including solar, by 2025.There are still a number of procedural steps before final implementation, but agreement is widespread that full implementation of the REST will significantly increase solar growth and development.

The potential for solar growth in Southern Arizona is tremendous, and the technology is in place for large-scale distributed solar generation. Moreover, on a smaller scale, photovoltaic (PV) installations on roof tops and commercial buildings are the fastest growing segment in the United States. With continued growth, financial incentives and increased research and development, the costs could drop to between $.08 to $.10 per kWh by 2020 for utility-owned and residential systems, and $.04 and $.06 for concentrator systems by 2025 *(NREL 2005, 2003).*

In short, current technology is in place, but financial incentives that reduce costs and remain in effect long enough to grow the solar market are needed. Technological advances, in addition, can continue to drive down costs. Add in a strong public education campaign and the use of solar generated energy should skyrocket.

The process of developing the *Solar Energy in Southern Arizona* report exemplifies the "fuel" that could propel this potential skyrocketing – a strong spirit of collaboration. The report resulted

from a collective effort among academicians, researchers, business leaders, environmentalists, policy experts, elected
officials and interested citizens. Members of three subcommittees – Market Growth, Research and Development, and Education and Outreach – dedicated significant time and expertise. The level of interest and the desire for solar success burns brightly in the region!

This spirit of regional collaboration that has imbued the work of the Community Solar Energy Initiative must continue, and expand. As William Harris, president and CEO of Science Foundation Arizona, pointed out in the Foreword to the report, other states and countries are not sitting idly by waiting to see who wins the solar lottery. The competition is fierce, which means that Arizona's commitment must be fiercer!

There is a need for an accurate, authoritative and respected "solar energy commons" where ideas and resources can be freely shared, meaningful priorities established, and where interested parties know to go for accurate information. In Southern Arizona nothing exists that truly fulfills this need. *The Solar Energy Center of Excellence* has much potential in this area, and Congresswoman Giffords' Community Solar Initiative can also continue to serve as a catalyst.

The report includes a number of action steps that could jump start solar energy in the region. Achieving these steps will require all parties to honestly examine the obstacles and challenges that could delay the growth of solar energy usage in the region, and the state.

A major question exists as to who will assume the financial obligation that is essential to growing a new market. The universal belief is that incentives are essential, with some combination of federal, state and utility investment needed to assure market growth. Moreover, these incentives must remain in place long enough for the market to expand to the point that solar technology is widely available and affordable.

Incentives alone will not guarantee solar market success. In fact, real growth will result from an integrated effort that weaves financial incentives with enhanced education and community outreach that is, in turn, woven with breakthroughs in research and development. Each of the strands is critical to solar energy growth and usage.

Among the most important action steps that are recommended:

Market Growth:

1. Extend the federal solar energy investment tax credits for homeowners and businesses through 2016;
2. Encourage full implementation of the Renewable Energy Standard Tariff (REST);
3. Implement state incentives that attract new solar businesses to the state, and that help assure the economic success of existing businesses;
4. Extend Federal investment tax credits for utilities;

Research and Development:

1. Develop cost effective and efficient solar energy generation;
2. Devise new and improve existing technologies for storage capacity;
3. Research new methods of energy transmission;

4. Establish bricks and mortar research center dedicated to solar.

Education and Outreach:

1. Organize and coordinate educational resources on solar energy and disseminate it through existing networks—environmental associations, school districts, library interconnections, science teacher organizations, neighborhood and homeowner's associations, and faith-based communities.
2. Encourage partnerships between educators and businesses to create funding for professional development for teachers on solar education;
3. Promote Federal funding to install solar in all public schools;
4. Collaborate with the Arizona Department of Education to include solar in state standards.

Again, the need for collaboration is vital. What is not explicitly captured in this report are the many ways in which relationships among the various sectors of the solar industry have been strengthened over the months of work on this report. Researchers, market experts, business leaders and educators have learned to view solar from a shared perspective. This cross-fertilization is an important element in the future success of solar. Hopefully, these relationships will continue to bear solar fruit.

To help assure that this happens, the work of the Community Solar Initiative will continue. Over the next year, Advisory Council members will identify the Action Steps that would benefit from additional hearings and public input. These will then be the subject of hearings that will be held before Congresswoman Giffords and the Congressional Advisory Council on Solar Energy. The intent of these hearings will be to shine a strong light on the most critical action steps recommended in the report, to identify impediments and propose actions to keep the momentum alive.

In addition to the Advisory Council hearings, there will be a second track of action that will focus on the "smaller bite" proposals that can begin immediately. These include such things as creating solar information sessions for classrooms and public libraries and working with media outlets to promote solar programming and public service announcements. These actions steps will be guided by newly formed Implementation Committees, which will include many Working Group members.

The Solar Energy in Southern Arizona report is an important first step in a long-term process. The action steps included in the document are intended to keep solar magic growing in Southern Arizona, with people from a wide range of disciplines dedicated to mining the potential and working together honestly and diligently toward the greater good of our region.

FOREWORD

Cracking the Code:
Solar Energy Signals a Significant Opportunity for Arizona

William C. Harris
President & CEO, Science Foundation Arizona

Arizona is the solar capital of the United States. In fact, with the necessary technology, Arizona has enough sun to provide power for the entire country. We have the opportunity to lead the world in solar technology development in a span of five to 10 years and reap enormous benefits: environmental impacts, wealth generation resulting from commercialized technologies and economic implications for entire regions.

We're not alone in recognizing and valuing these benefits. States like California, Texas and Florida and countries including Germany and Japan are aggressively advancing their positions to effectively compete for this leadership position.

In order to lead, we must crack the code of cooperation. This starts with educating the public about the numerous benefits of solar energy. It includes the CEO leadership groups and economic councils recognizing the need for alternative fuel sources and understanding Arizona's unique opportunity given its abundance of sunshine. It continues with local utility companies taking drastic measures to support solar technology development. And it engages our state leaders in both the public and private sectors to embrace the possibilities, walk the talk and develop public policy to support our state's short- and long-term plans.

We're already on the right track thanks to the leadership of Congresswoman Gabrielle Giffords, who launched the Community Solar Energy Initiative in April 2007, and Governor Janet Napolitano and the Arizona State Legislature, who supported several key competitiveness investment initiatives this year that emphasized innovation. One example was the allocation of $100 million over four years to fund the nonprofit Science Foundation Arizona (SFAz). SFAz's priorities include investing in statewide sustainability research, such as solar technology, in addition to advancing other scientific and medical research opportunities.

Arizonans need to understand that small steps by one region of a state will not create the transformation we need to become less dependent on oil. The U.S. needs a large-scale approach to truly transform the solar-industry landscape, and leadership at a national level is essential. That is why Congresswoman Giffords' leadership is so important. The solar energy focus in Arizona should not be divided into regions. It must be "Arizona Inc." working together to become a world leader in solar energy research, development and implementation. If we do not capitalize on the opportunity we have now to work collectively as a state by pooling our assets, we will miss an important chance to build the critical mass essential for success in this arena.

This report begins the process of engaging Arizona's future in a serious manner. It is significant that Southern Arizona has seized the initiative provided by Congresswoman Giffords. The next step is extending the leadership statewide, forming an action-oriented working group and establishing incentives to create a competitive advantage for Arizona.

While such statewide collaboration may not be common, the Flinn Foundation has demonstrated the power and potential of such cooperation with its Arizona Biosciences Roadmap. Let's build on that spirit and make "Arizona Inc." the new 21st century model for solar energy development and utilization by creating both the R&D and business enterprises to carry us forward.

Arizonans can make the next big photovoltaic and concentrating solar research discoveries, secure the patents that protect them, and build and market successful products to the world. Cracking the code to statewide collaboration is the most important step we can take to advance solar energy in the 21st century economy. If not Arizona, then who? If not now, then when?